CITY OF NORWALK

ADVANCED TRAFFIC MANAGEMENT SYSTEM PROJECT

Statement of Work

Draft (Version 1.0)

Prepared by:
NET Corporation

April 25, 2005

PROJECT SCOPE

Project Phases

This document defines the scope of services for the City of Norwalk Advanced Traffic Management System ("ATMS") Project (the "Project"). Capitalized terms used in this document (Statement of Work) without definition shall have the meanings given to such terms in the base document of the Traffic Control System Agreement between Econolite and City (the "Agreement"). Work described in this Statement of Work will be completed and delivered by Econolite to the City in accordance with the terms of the Agreement. The following is an outline of the major components of the Project.

- Preliminary Engineering
- Custom Programming Modifications
- Integration to the City of Norwalk traffic signal controllers, 35 initial and 78 total
- Integration of the CCTV module to 7 cameras
- System Implementation
- Final Acceptance Testing

Project Areas

The initial implementation of the Project will include one or more of the following:

- 35 total intersections (see Exhibit A); nine (9) of which are also CCTV camera locations (see Exhibit B)

Project Overview

Los Angeles County Department of Public Works ("DPW"), in partnership with the Los Angeles County Metropolitan Transportation Authority ("Metro"), is currently administering a number of regional traffic flow improvement projects throughout the County area. The primary component of these projects is the installation of multi-jurisdictional ATMS's, which will allow monitoring and control of traffic signals across jurisdictional boundaries. Other project elements include the installation of communications and surveillance systems required to support the ATMS and the installation of other advanced elements such as closed circuit televisions, advanced traveler information systems, and workstations in each agency. Subregional Traffic Management Centers ("TMC's") are also included. These Centers will provide a means for monitoring, data distribution, and information sharing among the affected jurisdictions.

The new ATMS for the City will build upon the commercial-off-the shelf Econolite ICONS System. This Statement of Work details the design and development of custom features to the System Software and installation and field integration for 78 intersections and 7 CCTV cameras in the City of Norwalk.

SPECIAL PROJECT PROVISIONS

System Requirements

- The System Specifications for the City of Norwalk ATMS - ICONS documents the minimum software functionality, hardware, network equipment and peripherals required for the Integrated System to perform optimally. Task 4 (Custom Programming Modifications) of this Statement of Work will customize the System Software as described to provide the functionality required by the City.
- The System Requirements Document documents the minimum user and operational functional requirements or System requirements. Task 4 (Custom Programming Modifications) Statement of Work will customize the System Software as described to provide the functionality required by the City. The Integrated System must meet both the ICONS System Specifications and the custom requirements as described in Task 4 (Custom Programming Modifications) and in the Systems Requirements Document.

Project Deliverables

For each deliverable titled "DRAFT" outlined in the Agreement, Econolite shall submit to the City "DRAFT" versions for review and comment. If the first draft submitted to the City is not acceptable to the City, it will be returned to Econolite until it is in a form acceptable for preparation of "FINAL" documents.

Econolite shall use the standard City software set forth below when preparing deliverables. Econolite shall provide deliverables in the appropriate file format (by downloads and/or via e-mail) as follows:

- Microsoft Word – Word Processing
- Microsoft Excel – Spreadsheet
- Microsoft PowerPoint – Presentation Materials
- Microsoft Project – Project Management and Project Plan

SCOPE OF SERVICES

Task 1: Project Management

Econolite's Project Manager shall act as the principal contact for the City and any other involved agencies. Econolite's Project Manager will be responsible for the completion of activities associated with the performance of this Project. Additional responsibilities include management of project planning activities and tracking of resources associated with each aspect of the Project. Econolite's Project Manager shall oversee and participate in the activities of the Project.

Task 1.1: Project Coordination

Econolite shall act as a system integrator to coordinate technical design activities with the involved public and private agencies for each system component of the Integrated System. It should be noted that this Task would be billed on a "not to exceed" time and materials basis in accordance with the Hourly Labor Rates shown in Attachment X (Econolite's Applicable Hourly Rates) to Exhibit X (Schedule of Deliverables and Payments). For the purposes of developing a cost estimate, the number of hours for each coordination effort has been estimated. The following lists the typical technical activities expected of Econolite:

1. Coordination with other contractors/agencies deploying the ICONS ATMS within Los Angeles County to avoid duplication of effort in design and deployment (up to 80 hours).

2. Participation in peer group meetings with contractors in other traffic forums to help resolve compatibility/integration issues. This will also include assistance in communicating the capabilities and advantages of the Integrated System to the agencies within Los Angeles County (up to 60 hours).

3. Coordination with other contractors installing the communications network for the ICONS ATMS. These meetings will be to ensure that all communications networks installed will be compatible with the Integrated System's functional specifications (up to 80 hours).

4. Coordination with IEN development team (up to 60 hours).

Task 1.2: Prepare Project Status Reports

Econolite shall prepare and submit written monthly project status reports.

The reports shall include the following information:

- Period covered by the report.
- Overview of the reporting period.
- Tasks, subtasks, Deliverables, goods, services and other Work scheduled for the reporting period which were not completed.
- Tasks, subtasks, Deliverables, goods, services and other Work scheduled for the reporting period which were completed.
- Tasks, subtasks, Deliverables, goods, services and other Work completed in the reporting period which were not scheduled.
- Issues to be resolved.

- Issues resolved.
- Summary of project status as of reporting date.
- Updated Deliverables chart and completion schedule, if necessary.
- Any other information that City may from time to time reasonably require.

Econolite shall also prepare claims, invoices, billings, and other financial information for review and approval by the City, as required by this Agreement.

Task 1.3: Purchase 3rd Party Software

The City shall purchase 3rd party software that is required for the development of the Integrated System.

- MS Windows Server 2003
- MS Window 2000 Professional
- SQL Server 2000

Task 2: Preliminary Engineering

The System Requirements Document identifies the City's System Requirements. The Document summarizes the functionality of the System and outlines the customizations/modifications that may be needed to be made to the Baseline Software to meet the City's desired functionality. Econolite shall verify the requirements for installing the Integrated System to operate and monitor traffic signals and CCTV cameras from the City's Local Control Center (LCC), including any remote workstations to be deployed via Local Area Network (LAN), Virtual Private Network, or Remote Access services. If modifications are necessary to meet both the ICONS specification and the City's System Requirements, Econolite will identify and summarize all changes needed.

Econolite shall review the existing recommendations and plans for communication facilities in the City of Norwalk. The City anticipates interconnecting all of the intersections via fiber optic cable and wireless modems. These recommendations shall specifically include specifications for communication equipment that will be used by the system to communicate with field devices. The product of this review will be the determination as to whether the recommended equipment is adequate to support the system operation. Any equipment needed will be procured by the City.

Econolite shall review the functions of the Integrated System, the communications infrastructure required for proper operation and identify any deficiencies in the existing or planned communication infrastructure. Econolite shall develop a System Integration Procedures document that describes the interfaces between the central system and enhanced local controller. This document shall contain protocol definitions and timing data parameters included in the AB3418E protocol extensions. In addition, Econolite shall develop a Software Functional Specification to document the software functional requirements, which will serve as the basis for the Integrated System to be installed in the City of Norwalk.

The City would also like the Integrated ICONS system to be compatible with the ASC/3 controller protocol.

Deliverables:

2.1(a) System Integration Procedures - Draft
2.1(b) System Integration Procedures - Final
2.2(a) Software Functional Specification - Draft
2.2(b) Software Functional Specification - Final
2.3(a) Communication Review - Draft
2.3(b) Communication Review - Final

Task 3: Procurement

Building upon Task 2 (Preliminary Engineering), Econolite shall develop a complete equipment list ("Bill of Materials") for full system deployment and submit to the City for review. The City will make any changes as necessary to comply with City standards and send the list back to Econolite for final review and approval. Upon Econolite's approval of the equipment list and all system configurations, the City will be responsible for procuring system components, including supporting third party software referenced in Task 1.3 above, system hardware, network equipment, and peripherals. The City will procure all necessary traffic controller upgrades, either software or hardware as necessary. Econolite will provide the City with procurement support/coordination in this effort. The City will ship all equipment identified by Econolite to Econolite's systems laboratory facility.

The workstations will be deployed on Windows 2000 and the servers on Windows 2003. The Integrated System will utilize SQL Server 2000 as its central database. It is anticipated that two workstations will be needed for the City and that further expansion will not be necessary.

As further described in the agreement, the City has purchased a perpetual License to use the Integrated System.

Deliverables:

3.1(a) Bill of Materials for Central System Equipment - Draft
3.1(b) Bill of Materials for Central System Equipment - Final
3.2 License to the Integrated System (without incremental license fees for other agencies)

Task 4: Custom Programming Modifications to ICONS

All modifications to the System Software will be performed under this task. The modified System Software must have the ability to support Econolite controllers either through software upgrade or controller replacement. The modified System Software shall also integrate with the AB3418E protocol.

Custom software modifications to the ICONS System will be completed under this task. In addition to providing all current functionality available in the ICONS system, Econolite will provide all functionality necessary to comply with the requirements listed in Appendix A. Software modifications required to meet these requirements will be determined by Econolite.

For each modification deemed necessary, Econolite shall provide GUI Screen mockups, where applicable. The screens will be designed to be consistent with the current operation of existing ICONS screens and the functionality described the System Requirements. Econolite shall present these modifications to the City during a Critical Design Review (CDR). The City shall provide feedback within 21 calendar days of viewing the GUI. The comments shall be limited to screens designed specifically for the City. Modifications to the existing ICONS system other than what is determined necessary to meet the requirements will not be the financial responsibility of the City. Upon completion of the CDR and acceptance of the screen designs by the City, Econolite will complete the software. Subsequent to this approval, further changes to the displays shall not be required, but may be considered if agreed between the City and Econolite.

Deliverables:

4.1(a) ICONS GUI Screen Mockups – Draft
4.1(b) ICONS GUI Screen Mockups – Final
4.2 Critical Design Review

Task 5: Integration of CCTV Module

Econolite will integrate CCTV camera control with 9 CCTV cameras. The Integrated CCTV Module will be installed on a separate server with the client side integrated into the ICONS software.

The City shall be solely responsible for testing the operation of the CCTV camera assembly and CCTV camera control receiver unit. The City, with the assistance of Econolite shall test the communication interface to the CCTV camera control receiver unit.

Deliverables:

5.1 CCTV demonstration
5.2 CCTV Communication Program and Integrated CCTV Module User Documentation, and Developer Documentation.

Task 6: Integration and System Testing

As software components are developed, regression testing will be performed to ensure proper functionality within the developed components/modules as well as integrated into the System Software. Custom features will be delivered to the City as they are developed. It is anticipated that several software deliveries will be made. This strategy will allow the City to quickly have a functional system and reduce the overall integration time. Integration of ICONS shall be performed in stages. The following sequence of events details the staged implementation of the ICONS system.

1. The City will procure designated equipment that will be shipped to Econolite's laboratory for configuration and software installation. The basis for selecting and procuring this equipment is detailed under Task 3.
2. Econolite will configure the equipment and install required 3rd party software. A lab configuration will be created and maintained in Econolite's facility to simulate the City of Norwalk environment.

3. An Acceptance Test Plan will be generated by Econolite and approved by City. This Test Plan will document the criteria for testing, and what resources are required to successfully perform each phase of testing. The Acceptance Test will verify requirements contained in the Software Requirements for the City of Norwalk ATMS.
4. The Acceptance Test Plan will include Response Time standards for transactions and report queries. The Integrated System shall be tested in accordance with a mutually agreed upon Response Time procedure that isolates connectivity latencies to verify that the Response Time standards are met. If the Response Time standards proposed by Econolite fail to meet the City's reasonable expectations, or if the Integrated System fails to meet the Response Time standards, as agreed upon by the City's Project Director, he City can reject the Integrated System and require Econolite to resolve the hardware and software issues causing unacceptable Response Times, excluding connectivity latencies. After Econolite has resolved any such hardware and software issues, it shall resubmit the new proposed Response Time standards to the City, or the modified Integrated System, as the case may be, for approval by the City's Project Director, in the exercise of City Project Director's reasonable discretion.
5. An installation procedure will be generated by Econolite. This will describe the installation order and procedures used to install a ICONS client and server. This procedure will include 3rd party tools and may reference other supporting 3rd party documentation.
6. Upon completion of the Response Time standards testing, all functional aspects of the Integrated System will be validated in the lab environment to demonstrate that the components operate together as expected. Any deficiencies will be identified and addressed. A dry run of the installation procedure and Acceptance Test will be performed on the test environment at Econolite's development facility before on-site installation testing. The City reserves the right to supervise the factory demonstration at Econolite's development facility.
7. Upon successful completion of the factory demonstration, Econolite will ship the City procured equipment received in Task 3 back to the City's LCC. One workstation and server will remain in Econolite's laboratory facility to allow Econolite to replicate issues that arise following the factory demonstration. Econolite will assist City personnel in installing the equipment and testing the interface functions between the system and the local controllers. City personnel will be responsible for developing and entering local controller timing and configuration data into the system database. Preliminary testing will utilize controllers installed in the City's LCC.
8. Econolite will assist City personnel with the installation of 35 updated/upgraded intersections by assisting with configuration of these field signals within the Integrated System and by monitoring the operation of the System at the control center. This assistance will include preliminary training on the Integrated System operation of the local controllers and graphic configuration within the System. The Acceptance Test Plan will be then performed on these 35 intersections, which is discussed under Task 8. The completion of the acceptance test constitutes "Go Live."
9. Econolite will incrementally install updated system software as custom features are developed that support the additional modifications described in Task 4. Econolite will assist City personnel in the testing of these new features and monitor the operation of the system. Econolite will provide initial training on the operation of the new features.

Software and problem reporting will fall under configuration management following the factory demonstration.

Deliverables:

6.1(a) Acceptance Test Plan, including Proposed Response Times - Draft
6.1(b) Acceptance Test Plan, including County-approved Response Times - Final
6.2(a) Installation Procedure – Draft
6.2(b) Installation Procedure – Final
6.3 Factory Demonstration
6.4 Equipment Installation at the City LCC
6.5 System Installation for 35 Intersections
6.6 40 Hours of Training

Task 7: Documentation

Econolite will provide existing documentation customized for the Integrated System in the following form:

- USER'S GUIDE for ICONS – provides an overview description of the system, its components, how they are used or accessed by the operators as well as how to use the GUI's for all aspects of the system. The USER'S GUIDE shall include information on the custom features developed under Task 4 (Custom Programming Modifications).
- MAINTENANCE GUIDE for ICONS - describes how to configure and maintain the ICONS Workstations and Servers. This document discusses routine system maintenance, operation with the Windows Service Control Manager and required configuration settings
- QUICK START GUIDE for ICONS – describes initial configuration and setup of the system. This brief document references the USER'S GUIDE, but presents the information in a simple format. The document focuses on data entry, map customization, and initial configuration.

Electronic copies of the final documentation will be provided.

Training will be provided on the Integrated System and focus on how to navigate and utilize the ICONS documentation. Training topics include:

- On-line help
- Installing software updates
- Intersection phase configuration
- Naming conventions
- System components

Deliverables:

7.1(a) Electronic Copies of the System USER'S, MAINTENANCE and QUICK START GUIDE for ICONS – Draft
7.1(b) Electronic Copies of the System USER'S, MAINTENANCE and QUICK START GUIDE for ICONS – Final
7.2 20 Hours of Training

Task 8: System Acceptance and Configuration

Upon completion of Task 6, Econolite will execute the Acceptance Test using the 35 deployed controllers in the City. Econolite will deliver the results of the Initial Acceptance Report to the City after successfully completing the Acceptance Test. At least 90% of the tests must pass to deliver the Initial Acceptance Report. Upon successful completion of all tests, Econolite will deliver the Final Acceptance Test Report. Following the successful completion of the Acceptance test, Econlite will assist the County to expand the system to 78 intersections. The City, with the support of Econolite, shall configure the balance of the 78 intersections by utilizing standard graphics as provided in ICONS, adding the intersection to the ICONS database, configuring intersection communications, and entering intersection timing data. An abbreviated list of acceptance procedures will be provided and executed for these additional intersections, which will allow the City to determine if intersections are functioning properly. Econolite will assist the City as needed in executing these procedures. Communication problems are not the responsibility of Econlite and may not be used as a factor in failing a test. The acceptance test will verify all requirements contained in the System Requirements. During system installation and the 12-month support period, Econolite shall use a defined process as approved by the City to track and correct system problems. Following the factory demonstration, all problems will be recorded and tracked using this process. Any problem encountered will be recorded using an approved system problem report ("PR") form.

When a PR is written, it will be emailed to a unique address created solely for the support of the Integrated System. Econolite shall provide the City with an updated file monthly. The PR shall be assigned an initial priority of A to D based on the following conditions:

- Priority A (Critical) – Problems that cause the system or a component/application of the system to halt processing and impacts the County's normal business operations.
- Priority B (Moderate) – Problems that prohibit required functionality but a reasonable "work-around" is available to proceed and such error or malfunction does not substantially impair County's normal business operations.
- Priority C (Inconvenience) – Problems that are inconvenient or an annoyance but does not affect functionality.
- Priority D (Suggestion) – Changes that may improve or enhance user functionality but are outside the scope of required work.

Training will be provided to the City on the operation and maintenance of ICONS. Topics include:

- Map customization
- Multi-jurisdictional security
- Report generation
- System events

Deliverables:

8.1(a) Acceptance Test Report – Initial
8.1(b) Acceptance Test Report – Final
8.2 Addition of 50 Intersections
8.3 20 Hours of Training

Task 9: Evaluation Test Period

After completion of Task 7 (System Installation) and acceptance testing of Task 8, an on-site trial period of two (2) thirty (30) calendar days is required to evaluate the performance and reliability of the Integrated System. If the City determines in good faith that the equipment fails to function as required in the Agreement, including that the Integrated System fails to satisfy the City approved Response Time standards, the Integrated System may be rejected. Deficiency of the Integrated System will be measured against the following Priority Levels:

- Level I Priority - An error or malfunction, including a Deficiency, that causes the System Software or a component or application of the System Software to halt processing, and for which no reasonable workaround, other than a workaround developed by Econolite under Paragraph x.x of Exhibit E (Maintenance and Support) of the Agreement, is available.

- Level II Priority - An error or malfunction, including a Deficiency, that prohibits required functionality, but at the time of the error or malfunction, a reasonable workaround is available to proceed, and such workaround does not substantially impair City's normal business operations.

- Level III Priority - An error or malfunction, including a Deficiency, which is inconvenient or an annoyance but does not affect functionality.

Final acceptance of the Integrated System will be granted per the conditions set forth in Paragraph x.x of the Agreement.

Econolite shall achieve "Final Acceptance" upon successful completion of all the following: (a) its completion and delivery of all Tasks, subtasks, Deliverables, services and testing protocols associated with the Final Acceptance requirements set forth in the Statement of Work; (b) successful implementation of all functions and features of all phases and successful achievement of all testing protocols has been verified by Econolite; (c) the City Project Director has provided Econolite with written approval, as evidenced by the City Project Director's countersignature on all applicable Task/Deliverable Acceptance Certificates, of all such Work; (d) all such Work has been provided, installed, and operates in the City's production environment with no Deficiencies more severe than a Level III Priority for no less than two (2) thirty (30) day periods following the completion of Task 8 (System Acceptance) Statement of Work; and (e) the City Project Director has provided Econolite with written approval, as evidenced by the City Project Director's countersignature on the applicable Task/Deliverable Acceptance Certificate, of Econolite's achievement of Final Acceptance (the date of satisfaction of the foregoing, including written approval thereof shall be referred to as the "Final Acceptance Date").

The City will issue a letter to Econolite indicating Final Acceptance. Task 9.1 will be billed on a "not to exceed" time and materials basis. Effort that occurs following completion of Task 8 through the receipt of a letter indicating Final Acceptance will be billed to this Task. Labor includes software debugging, configuration management, lab synchronization, accounting, invoice processing, internal project management, and travel time. Materials will include travel, allocation and other direct expenses.

Task 9.2 (System Warranty) will begin and be invoiced upon the receipt of Final Acceptance letter by Econolite. System Maintenance will begin the first calendar day following the expiration of the Warranty Period.

Deliverables:

9.1 Final Acceptance
9.2 System Warranty

Task 10: Training

The training in deliverable 10.2 will be a comprehensive, hands-on review of all previous training sessions. In addition, the City may request additional topics that were not previously covered. The following topics will be discussed:

- Operation and Management of the Integrated System
- Overview of the ICONS System and City of Norwalk Custom Features
- Operations and System Maintenance
- Security
- Configuration and Customization
- Advanced Functionality

A training schedule will be delivered 2 weeks prior to comprehensive training session that will detail the date and time for each topic. The City can provide input that will help determine the amount of time that is spent on each topic.

Deliverables:

10.1 Electronic Copies of Training Documentation (syllabus, manuals, visual presentation materials)
10.2 40 Hours of Hands-on Training

EXHIBIT A - List of Intersections to be Connected to Traffic Control System

No.	Primary Street	Cross Street	Communication
1	Firestone Blvd	Hoxie Ave	Fiber
2	Firestone Blvd	Studebaker Rd	Fiber
3	Firestone Blvd	Albertsons Dwy	Fiber
4	Firestone Blvd	Orr & Day Rd	Fiber
5	Firestone Blvd	Imperial Hwy	Fiber
6	Firestone Blvd	Woods Ave	Fiber
7	Firestone Blvd	Pioneer Blvd	Fiber
8	Firestone Blvd	San Antonio Dr	Fiber
9	Imperial Hwy	Curtis & King Rd	Wireless
10	Imperial Hwy	Domart Ave	Wireless
11	Imperial Hwy	Staples Dwy	Wireless
12	Imperial Hwy	Hoxie Ave	Wireless
13	Imperial Hwy	Studebaker Rd	Wireless
14	Imperial Hwy	Orr & Day Rd	Wireless
15	Imperial Hwy	Jersey Ave	Fiber
16	Imperial Hwy	Pioneer Blvd	Fiber
17	Imperial Hwy	Kalnor Ave	Fiber
18	Imperial Hwy	Norwalk Blvd	Fiber
19	Imperial Hwy	AVD Manuel	Fiber
20	Imperial Hwy	Volunteer Ave	Fiber
21	Imperial Hwy	Ralphs Dwy	Fiber
22	Rosecrans Ave	Studebaker Rd	Wireless
23	Rosecrans Ave	Harvest Ave	Wireless
24	Rosecrans Ave	Flallon Ave	Wireless
25	Rosecrans Ave	Pioneer Blvd	Wireless
26	Rosecrans Ave	Clarkdale Ave	Wireless
27	Rosecrans Ave	Funston Ave	Wireless
28	Rosecrans Ave	Norwalk Blvd	Wireless
29	Rosecrans Ave	Shoemaker Ave	Wireless
30	Rosecrans Ave	Carmenita Rd	Wireless
31	Studebaker Rd	Lyndora St.	Wireless
32	Studebaker Rd	Littchen St.	Wireless
33	Studebaker Rd	Foster Rd.	Wireless

No.	Primary Street	Cross Street	Communication
34	Studebaker Rd	Leffingwell Rd.	Wireless

EXHIBIT B - List of CCTV Camera Locations to be Connected to Traffic Control System

No.	Cross Street	Jurisdiction	Communications
	Firestone Bl.		
1	Imperial Hwy	Norwalk	Fiber
2	Studebaker Rd.	Norwalk	Fiber
3	Pioneer Blvd.	Norwalk	DSL
	Rosecrans Ave.		
4	Studebaker Rd	Norwalk	DSL
5	Pioneer Blvd.	Norwalk	DSL
6	Carmenita Rd.	Norwalk	DSL
7	Wilmington	Compton	DSL
8	Long Beach Blvd	Compton	DSL
	Imperial Hwy.		
9	Bloomfield Ave.	Norwalk	Fiber